SAMPLE MATERIAL

Lesson Plans: Fifth-Grade Fractions

KIPP DC Key Academy, Washington, D.C.

Topic: National Math Panel: Critical Foundations for Algebra
Practice: Mathematics Preparation for Algebra

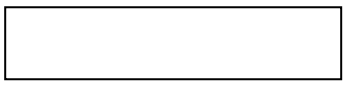
The KIPP lesson plan approach is illustrated in these two examples from grade 5. The first lesson is about identifying fractions on a number line; the second lesson is about writing equivalent fractions.

In each case, the teacher's key questions to students and student worksheets are included.

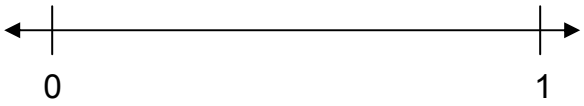
5th Math Lesson Plan	**MIXED NUMBERS ON NUMBER LINE**
	We will be able to name locations on a number line as fractions or mixed numbers by shading and counting the spaces.
Agenda • Do Now	5 min—timer Review as a class
• HW Check	Check PS 37, Assign PS 38
• Part of a whole…on a line?	Pass out sheets—CAN YOU Split this up? So can you split this up? HOW? We've got it…now who can tell me what this is a picture of? *Show picture of number line marked with arrow pointing to ¼ on the overhead.* Well, how many total parts are there? And how many are shaded? (shade the spaces up until the arrow) 1! SO, this is a picture of what fraction? ¼ It turns out fractions can be shown on number lines as well. We're going to practice reading fractions on a number line now. Pass notes out to students—they shade in ¼ and ¼. Try 4 examples together on front. Fill in notes: Write the last **whole number** that the arrow has passed Count the **total** number of spaces between whole numbers. This is the **denominator** Count how many **spaces** past the **whole number** the arrow is pointing. Ths is the numerator. Students try three—partner check as they go.
• Show Off! (8 min)	On back of Do Now, students solve 4 number line problems. Turn in for assessment

FRACTIONS are PARTS of a whole!

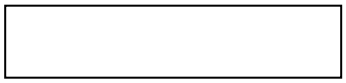
Split this square into 4 equal parts:



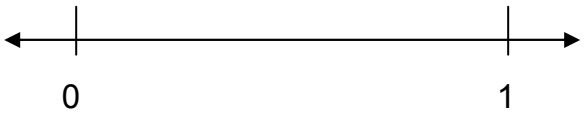
Can you split the space in between 0 and 1 into 4 equal parts?



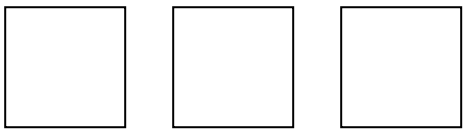
Split this square into 3 equal parts:



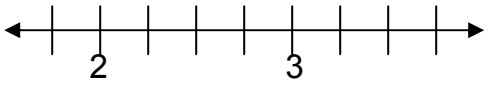
Can you split the space in between 0 and 1 into 3 equal parts?



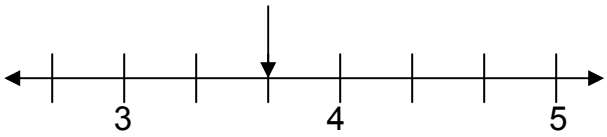
Can you shade in 2 $\frac{1}{4}$ squares?



Can you point to where 2 $\frac{1}{4}$ would be on the number line?



Where is the arrow pointing?



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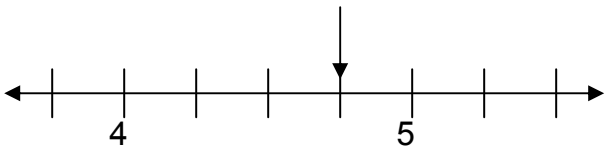


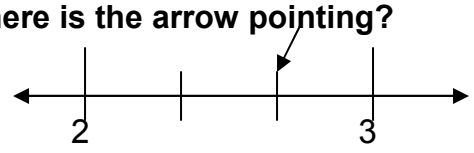
AIM: _____

Steps:

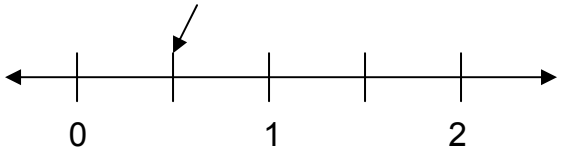
1. Write the last *whole number* that the arrow passed.
2. Shade the *total* **spaces** between whole numbers on the BOTTOM. This is the *denominator*

3. Shade how many *spaces* past the *whole number* the arrow is pointing on top. This is the *numerator.*

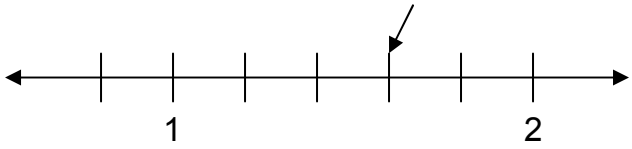
Ex 1: Where is the arrow pointing?



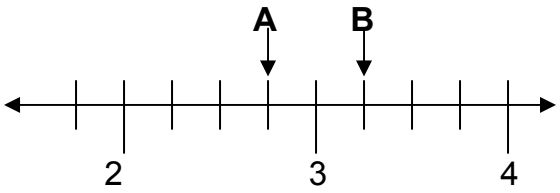
Ex 2: Where is the arrow pointing?



Ex 3: Where is the arrow pointing?



Ex 4: Where is the arrow pointing?



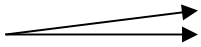
Do Now!!

1)

$5.28 ÷ 6 =				

2) There are 240 students in the gym. $\frac{1}{3}$ of them are fifth graders. How many students are fifth graders?

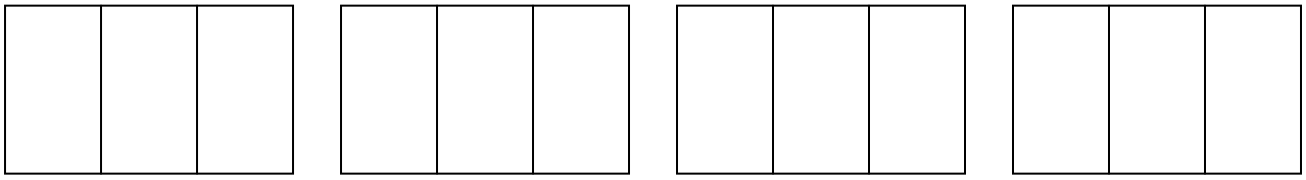
3) ESTIMATE how many degrees this angle measures:



Why do you think so?

4) Write the factors of 28:

5th Math Lesson Plan	**WRITING EQUIVALENT FRACTIONS**
Aim	We will be able to find equivalent fractions by multiplying by a magic 1!
Agenda • Do Now! (5 min + 4 min) • HW Check (6 min)	
	Check MS L PS, Assign MS L PS
• How else can I make this picture?	Notes—Shade in one third, Then shade in an equal amount of sixths. Shade in an equal amount of ninths Shade in an equal amount of twelfths So, I know 1/3 = 2/6, 1/3 = 3/9, and 1/3 = 4/12 They're the same amount. They are EQUAL! There must be another way to do this tough, without drawing pictures. Here's a brain teaser for you…
• Brain Teaser	If I multiply a number by _____, my answer equals the number I started with. What goes in the blank? Do a few examples. 5 x 1, 11 x 1, 420,938 x 1 Okay, so if I multiply 1/3 x 1…I still get 1/3. I didn't get 2/6 HOW CAN I GET 2/6? I can't add to make an equal number, the only thing I can do is multiply by 1! (If no one picks up that we could use a magic one, drop hints about it) Right, I could multiply by a fraction that equals 1 couldn't I? Couldn't I multiply by a magic one? Hwat happens if I multiply 1/3 x 2/2? *Students do on their paper* I get 2/6! What happens if I multiply 1/3 x 3/3? I get 3/9! 1/3 x 4/4? I get 4/12! SO, I can multiply a fraction by a Magic One, and I will get a fraction that is equal to it! Test it!
• Equivalent Fraction Notes	**Let's write this down** **Making Equivalent Fractions** When you multiply by one, the size of the number stays the same. ex: 5 x 1 = 5 or 1/3 x 1 = 1/3 If you multiply by a fraction that equals ONE, the size of the number stays the same, but it gets a different name. ex: 1/2 x 2/2= 2/4
• Show Off!	On back of Do Now



= = =

AIM: _____

$\frac{1}{3} = \frac{\quad}{6}$ $\frac{1}{3} = \frac{\quad}{9}$ $\frac{1}{3} = \frac{\quad}{12}$

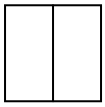
Why does this work???
4 x 1 = 5 x 1 = 11 x 1 = 13 x 1 =

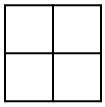
When I multiply any number by _____, my answer equals _____ _____.

When I multiply any fraction by a _____ _____, my answer still equals the original fraction!

PROVE IT!!!

$\frac{1}{2}$ x ____ = $\frac{1}{4}$ x ____ =





Write 3 different fractions equivalent to $\frac{2}{3}$:

$\frac{2}{3}$ x ___ = $\frac{2}{3}$ x ___ = $\frac{2}{3}$ x ___ =

Write a fraction equal to $\frac{2}{3}$ that has a denominator of 12:

$\frac{2}{3} \times \quad = \frac{\quad}{12}$

Write a fraction equal to $\frac{1}{4}$ that has a denominator of 16:

$\frac{1}{4} \times \quad = \frac{\quad}{16}$

Try these:

A) $\frac{3}{4} \times \frac{\quad}{\quad} = \frac{9}{12}$

B) $\frac{2}{3} \times \quad = \frac{4}{6}$

C) $\frac{2}{5} \times \frac{\quad}{\quad} = \frac{\quad}{10}$

D) $\frac{1}{2} \times \quad = \frac{\quad}{20}$

Write a fraction equal to $\frac{1}{4}$ that has a denominator of 12:

Write a fraction equal to $\frac{2}{5}$ that has a denominator of 10:

Write a fraction equal to $\frac{3}{8}$ that has a denominator of 24: